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| 09/726,870 | 11/30/2000 | Kenichi Kato | P/1139-97 | 1956 |

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EXAMINER

PHAN, MAN U

ART UNIT PAPER NUMBER

2665

DATE MAILED: 12/29/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/726,870

Applicant(s)

KATO, KENICHI

Examiner

Man Phan

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 August 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4 and 13 is/are rejected.
- 7) ☒ Claim(s) 5-12 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 November 2000 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Response to Amendment and Argument

1. This communication is in response to applicant's 08/04/2004 Amendment in the application of Kato for a "Mobile communication system and method of controlling synchronization between base stations" filed 11/30/2000. The proposed amendment to the claims and response have been entered and made of record. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file. Claims 1 and 13 have been amended and claims 1-13 are pending in the present application.

In view of applicant's amendment to amend the claims 1 and 13. The rejection of record with respect to claims 1 and 13 under 35 U.S.C. § 112, second paragraph are hereby removed.

2. Applicant's amendment and argument to the rejected claims are insufficient to distinguish the claimed invention from the cited prior arts or overcome the rejection of said claims under 35 U.S.C. 103 as discussed below. Applicant's argument with respect to the pending claims have been fully considered, but they are not persuasive for at least the following reasons.

3. In response to applicant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's

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disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971).

In response to Applicant's arguments, 37 CFR § 1.111 (B) states, "a general allegation that the claims define a patentable invention without specifically pointing out how the language of the claims patentably distinguishes them from the references does not comply with the requirements of this section." Applicant has failed to specifically point out how the language of the claims patentably distinguishes them from the references.

4. On page 9, third paragraph, applicant asserts that there is no motivation to combine the prior art as proposed in the office action, *Wheatley, III et al.* (US#6,151,311) with *Hirata* (US#5,920,557), i.e. In response, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, *Wheatley, III et al.* (US#6,151,311) and *Hirata* (US#5,920,557) are applied herein for the teaching of the controlling synchronization between base stations in TDMA cellular communication system. *Wheatley, III* discloses a novel and improved method and apparatus for time synchronizing a base station by means of timing signals transmitted from a mobile station which is concurrently in communication with a synchronized base station. *Wheatley, III* teaches the Measurement of Delay Between Transmission of Forward Link Signal From Slave Base Station and Receipt of Reverse link Signal at Slave Base Station,

and Timing Adjustment of Slave Base Station (See Fig. 3; Col. 11, lines 30 plus). In the same field of endeavor, Hirata (US#5,920,557) discloses a radio base station inter-station synchronizing circuit for use in a radio base station of a TDMA digital mobile communication system, in which a synchronizing signal data are sent from a synchronized timing control station to base stations, where the received data are compared with the same synchronizing signal data held by the base stations (Col. 2, lines 8 plus).

5. Applicant's argument with respect to the rejected claims 1 and 13 (page 10, 11, second paragraphs) that the cited references do not disclose the "*synchronizing signal is sent to each of the base station*". However, Hirata (US#5,920,557) discloses in Fig. 2 a block diagram illustrated a radio base inter-station synchronizing circuit used in TDMA digital mobile communication system, in which a synchronizing signal data are sent from a synchronized timing control station to base stations (*synchronizing signal is sent to each of the base station*), where the received data are compared with the same synchronizing signal data held by the base stations (*computing a timing correction for correct synchronizing timing signals*)(Col. 2, lines 2-5 and Col. 3, lines 1-5, Col. 6, lines 1 plus). Applicant further asserts that the references fails to disclose the "*detecting of the arrival signal, arrival delay time of the synchronizing signal at each of the base stations*" (page 11, second paragraph). However, Hirata also teaches in Fig.2 a radio base station inter-station synchronizing circuit shown in Fig. 2 a radio base inter-station synchronizing circuit includes: synchronizing signal data reception/comparison unit A that receives synchronizing signal data sent from a synchronized timing control station according to a request by the radio base station, and compares whether the received synchronizing signal data

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match with the synchronizing signal data held by the radio base station; timing correction unit B that, when the above-described comparison results in a match, subtracts from the timing of the received synchronizing signal data the delay time of transfer from the timing control station to that radio base station (*detecting of the arrival delay time of synchronizing signal*); timing holding unit C that holds the corrected synchronized timing (*correcting synchronizing signal based on timing correction*); frame timing generation unit D that generates frame timing of the radio base station based on the output pulse of timing holding unit C; phase difference measurement unit E that measures the phase difference between the timing signal outputted from timing correction unit B and the frame timing signal S19 outputted from frame timing generation unit D as necessary; and a control unit (CPU) that monitors and controls the operation of each of these components. The construction and operation of each of the above-described units will next be described (Col. 2, lines 54 plus). Furthermore, Wheatley, III discloses in Fig. 2 a diagram illustrated the various transmissions between the mobile station, the synchronous base station and the asynchronous base station and the corresponding time intervals, in which the transmission and corresponding time intervals used to synchronize the timing of slave base station 64 with the synchronized timing of reference base station 62, it adjusts its timing so as to synchronize it to the timing of base station 62 (See also Fig. 3; Col. 11, lines 30 plus). Therefore, the Examiner maintains that the references cited and applied in the last office actions for the rejection of the claims are maintained in this office action.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7 Claims 1-4 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wheatley, III et al. (US#6,151,311) in view of Hirata (US#5,920,557).

With respect to claims 1, 3 and 13, both Wheatley, III et al. (US#6,151,311) and Hirata (US#5,920,557) disclose a novel method and system for controlling synchronization between base stations in TDMA cellular communication system, according to the essential features of the claims. Wheatley, III discloses a novel and improved method and apparatus for synchronizing a base station by means of signals transmitted from a mobile station which is concurrently in communication with a synchronized base station. The slave base station attains synchronization with the reference base station through messages transmitted from and received by a mobile station in the soft handoff region between the reference base station and the slave base station. First, the round trip delay between the mobile station and the reference base station is measured by the reference base station (*delay detecting for synchronizing*). Once the mobile station acquires the signal from the slave base station, it measures and reports the difference between the

amount of time it takes a signal to travel from the reference base station to it and the amount of time it takes a signal to travel from the slave base station to it. The last measurement necessary is a measurement by the slave base station of the time difference between the time it received the reverse link signal from the mobile and station the time it transmitted a signal to the mobile station. A series of computations described in detail herein are performed upon the measured time values to determine the time difference between the slave base station and an adjustment of the slave base station timing is performed in accordance therewith. (See Fig. 3; Col. 4, lines 11 plus; and Col. 11, lines 62 plus). In the same field of endeavor, Hirata (US#5,920,557) discloses in Fig. 2 a block diagram illustrated a radio base station inter-station synchronizing circuit in a TDMA digital mobile communication system, in which data reception/comparison circuit 4 that outputs data match signal S9 when synchronizing signal data transmitted from a synchronized timing control station provided in a mobile communication system match with the same synchronizing signal data held by that radio base station; delay time correction counter 5 that, upon receiving the data match signal S9, subtracts from the timing of the received synchronizing signal data line delay time from the synchronized timing control station to that radio base station; timing holding circuit 8 that holds the corrected synchronized timing; and frame timing generation circuit 9 that generates and outputs frame timing from the output pulse of the timing holding circuit 8 (Col. 2; lines 12 plus).

One skilled in the art would have recognized the need for effectively and efficiently controlling synchronization between base stations utilizing timing adjustment processor, and would have applied Hirata's teaching of the base station inter-station synchronizing circuit into Wheatley's novel use of time synchronizing a slave base station with a reference base station.

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Therefore, It would have been obvious to a person of ordinary skill in the art at the time of the invention was made to apply Hirata's radio base station inter-station synchronizing circuit into Wheatley's mobile station assisted timing synchronization in a CDMA communication system with the motivation being to provide a method and system for controlling synchronization between base stations.

8 Claims 2 and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wheatley, III et al. (US#6,151,311) in view of Hirata (US#5,920,557) as applied to the claims above, and further in view of Brydon et al. (US#5,483,677).

With respect to claims 2 and 4, Wheatley and Hirata disclose the claimed limitations discussed in paragraph 5 above. However, these claims differ from the claims above in that the claims require for generating a test signal for delay time detection in performing synchronization between base stations. In the same field of endeavor, Brydon et al. (US#5,483,677) provides a radio system comprising: a central source of signals for transmission; a plurality of radio transmitters, each connected to the central source by a digital data transfer link each having a respective transfer delay; means for injecting into a channel of a transfer link a test signal at intended predetermined times (*generating a test signal for delay time detection*), means for determining the travel time of the test signal over a link by establishing the difference between arrival time and the intended predetermined time of transmission, and means for adjusting the transfer delay to at least one of the transmitters to equalize the transfer delays to the transmitters, so that signals from the central source can be transmitted from the transmitters substantially in time synchronism, characterized in that there is correction means for measuring a transmit delay

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between the intended predetermined transmission time and the actual time of transmission of the test signal, and for sending the length of the transmit delay over the transfer link, so that the adjustment of transfer delay can be corrected to take account of the transmit delay (Col. 2; lines 23 plus).

One skilled in the art would have recognized the need for effectively and efficiently controlling synchronization between base stations utilizing timing adjustment processor, and would have applied Brydon's delay equalizer utilizing the test signal for synchronization, and Hirata's teaching of the base station inter-station synchronizing circuit into Wheatley's novel use of time synchronizing a slave base station with a reference base station. Therefore, It would have been obvious to a person of ordinary skill in the art at the time of the invention was made to apply Brydon's radio system with measurement and adjustment of transfer delay, and Hirata's radio base station inter-station synchronizing circuit into Wheatley's mobile station assisted timing synchronization in a CDMA communication system with the motivation being to provide a method and system for controlling synchronization between base stations.

Allowable Subject Matter

9 Claims 5-12 are objected to as being dependent upon the rejected base claims, but would be allowable if rewritten in independent form including all of the limitations of the base claims and any intervening claims.

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10 The following is an examiner's statement of reasons for the indication of allowable subject matter: The closest prior art of record fails to disclose or suggest wherein the system comprises switching means for selectively switching an operating conditions thereof to normal and test operating condition, and makes the delay time detection means operate when the system is in a test operation mode, as recited in claims 5-8; wherein the system executes the test operation mode when operating the system for the first time and/or terminating a maintenance operation including additional installation of base stations, as specifically recited in claims 9-12.

11 Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

12. **ACTION IS MADE FINAL.** See MPEP ' 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however,

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will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

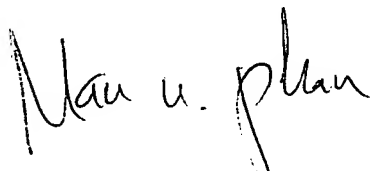
13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to M. Phan whose telephone number is (571) 272-3149. The examiner can normally be reached on Mon - Fri from 6:00 to 3:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Huy Vu, can be reached on (571) 272-3155. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (571) 272-2600.

Mphan

12/22/2004.


MAN U. PHAN
PRIMARY EXAMINER